

WHAT IS CLAIMED IS:

1. An apparatus for cutting comprising:
  - a blade having a cutting edge, and a means of attachment to a handle assembly;
  - 5 a conduit having an inlet, an outlet, and a predetermined orientation relative to the blade; and
  - a catalyst disposed proximate to the conduit outlet.
2. The apparatus of claim 1 wherein the blade has a tip and the conduit outlet is disposed proximate to the blade tip.
- 10 3. The apparatus of claim 1 further comprising:
  - a second conduit having an inlet, an outlet, and a predetermined orientation relative to the blade; and
  - a catalyst disposed proximate to the second conduit outlet.
4. The apparatus of claim 3 wherein the blade has a first side and a second side, and  
15 conduit is disposed on the second side of the blade.
5. The apparatus of claim 3 wherein the second conduit is disposed on the same side of the blade as the first conduit.
6. The apparatus of claim 1 wherein the handle assembly comprises:
  - a handle conduit having an inlet and an outlet, wherein the handle conduit  
20 outlet releasably attaches to the conduit inlet, and is in fluid communication with the conduit inlet.
7. The apparatus of claim 1 wherein the catalyst comprises a catalytic metal wherein  
25 the catalytic metal comprises at least one metal selected from the group consisting of scandium (Sc), titanium (Ti), vanadium (V), chromium (Cr), manganese (Mn), iron (Fe), cobalt (Co), nickel (Ni), copper (Cu), zinc (Zn), yttrium (Y), zirconium (Zr), niobium (Nb), molybdenum (Mo), technetium (Tc), ruthenium (Ru), rhodium (Rh), palladium (Pd), silver (Ag), cadmium (Cd), hafnium (Hf), tantalum (Ta), tungsten (W), rhenium (Re), osmium (Os), iridium (Ir), platinum (Pt), gold

(Au), gallium (Ga), germanium (Ge), indium (In), thallium (Tl), tin (Sn), lead (Pb), antimony (Sb), bismuth (Bi), polonium (Po), and mixtures thereof.

8. The apparatus of claim 7 wherein the catalytic metal comprises at least one metal selected from the group consisting of platinum, palladium, rhenium, rhodium, nickel, iron, and mixtures thereof.

5 9. The apparatus of claim 1 wherein the blade is made of a material selected from the group consisting of stainless steels, ceramics, glasses, quartz, thermoset plastics, and alloys of metals.

10. The apparatus of claim 1 wherein the conduit has an internal diameter of less than 400 micrometers.

10 11. A scalpel blade for cutting tissue comprising:  
15 a blade comprising a cutting edge, a non-cutting opposing edge, an edge distal to the cutting edge, and a means for attachment to a handle, and defining at least one channel therein, wherein the channel has an inlet proximate to the distal edge, and an outlet proximate to the non-cutting edge; and  
a catalyst disposed proximate to the channel outlet.

12. The scalpel blade of claim 11 wherein the blade defines a plurality of channels, wherein each channel has an inlet proximate to the distal edge, and an outlet proximate to the non-cutting edge.

20 13. The scalpel blade of claim 11 wherein the blade defines a main channel and a plurality of secondary channels, and wherein the main channel has an inlet proximate to the distal edge, the secondary channels are in fluid communication with the main channel, and the secondary channels each have an outlet proximate to the non-cutting edge.

25 14. The scalpel blade of claim 13 wherein the plurality of secondary channel outlets are distributed uniformly along the non-cutting edge.

15. The scalpel blade of claim 13 wherein the plurality of secondary channel outlets are distributed uniformly near the tip of the blade along the non-cutting edge.

16. The scalpel blade of claim 13 wherein each secondary channel has an inlet proximate to the main channel outlet.
17. The scalpel blade of claim 13 wherein the secondary channel outlets are distributed along the non-cutting edge in a non-uniform distribution for directed local heating of the scalpel blade.
18. The scalpel blade of claim 11 wherein the catalyst comprises a catalytic metal wherein the catalytic metal comprises at least one metal selected from the group consisting of scandium (Sc), titanium (Ti), vanadium (V), chromium (Cr), manganese (Mn), iron (Fe), cobalt (Co), nickel (Ni), copper (Cu), zinc (Zn), yttrium (Y), zirconium (Zr), niobium (Nb), molybdenum (Mo), technetium (Tc), ruthenium (Ru), rhodium (Rh), palladium (Pd), silver (Ag), cadmium (Cd), hafnium (Hf), tantalum (Ta), tungsten (W), rhenium (Re), osmium (Os), iridium (Ir), platinum (Pt), gold (Au), gallium (Ga), germanium (Ge), indium (In), thallium (Tl), tin (Sn), lead (Pb), antimony (Sb), bismuth (Bi), polonium (Po), and mixtures thereof.
19. A scalpel for cutting tissue and cauterizing blood vessels comprising:
  - a handle with at least two attachment means for blades;
  - a first blade having a cutting edge, a non-cutting opposing edge, and a distal edge proximate to a means for attachment to the handle;
  - at least one second blade with a means for attachment to the handle and defining at least one channel therein, with an inlet and an outlet; and
  - a catalyst disposed proximate to the channel outlet.
20. The scalpel of claim 19 wherein the first blade further defines at least one channel therein, with an inlet and an outlet; and
- 25 a catalyst disposed proximate to the channel outlet.
21. An apparatus for cutting comprising:
  - a handle assembly having a blade attachment end, an end distal the blade attachment end, and a conduit with the conduit outlet proximate the distal end;

a blade having a cutting edge and a means of attachment to the handle assembly;

a conduit having an inlet in fluid communication with the handle assembly conduit outlet, and an outlet; and

5 a catalyst disposed proximate to the conduit outlet.